

**REMARKS****INTRODUCTION:**

In accordance with the foregoing, the specification has been amended to correct an apparent typographical error, and claims 38 and 39 have been amended. Claim 38 has been amended to address the objection of the Examiner set forth on page 4 of the Office Action, and claim 39 has been amended to depend from claim 5 and to otherwise recite the features of claim 38.

Claims 1-6, 10-14, 24, 33, 36-39 are pending and under consideration.

Withdrawn claims 15-23, 32, 34, and 35 are pending for the purposes of later consideration as depending from elected linking claims. As set forth in MPEP 809.04, "[w]here the requirement for restriction in an application is predicated upon the nonallowability of generic or other type of linking claims, applicant is entitled to retain in the case claims to the nonelected invention or inventions." It is therefore respectfully submitted that, since claims 15-23, 32, 34, and 35 depend from corresponding elected claims 1 and 10, that the applicants are entitled to retain the withdrawn claims for the purposes of later examination.

Reconsideration is requested.

**ENTRY OF AMENDMENT UNDER 37 C.F.R. §1.116:**

Applicants request entry of this Rule 116 Response because:

- (1) the amendment of claims 38 and 39 should not entail any further search by the Examiner since no new features are being added or no new issues are being raised; and
- (2) the amendments do not significantly alter the scope of the claims and place the application at least into a better form for purposes of appeal. No new features or new issues are being raised.

The Manual of Patent Examining Procedures sets forth in Section 714.12 that "any amendment that would place the case either in condition for allowance or in better form for appeal may be entered." Moreover, Section 714.13 sets forth that "the Proposed Amendment

should be given sufficient consideration to determine whether the claims are in condition for allowance and/or whether the issues on appeal are simplified." The Manual of Patent Examining Procedures further articulates that the reason for any non-entry should be explained expressly in the Advisory Action.

**REJECTION UNDER 35 U.S.C. §§112 and 132:**

In the Office Action at pages 2-4, the Examiner rejects claims 36, 37, and 39 under 35 U.S.C. §112, first paragraph, and 132, as not being supported by the specification as filed and therefore representing new matter. This rejection is respectfully traversed and reconsideration is requested.

By way of review, claim 36 recites, among other features, that "the at least one additive compound does not include lithium." The Examiner asserts on page 3 of the Office Action that, since the specification does not include a negative limitation as set forth in claim 36, the newly presented claim 36 is not supported by the specification.

As a general matter, the requirements of 35 U.S.C. §112, first paragraph, are that the written description demonstrate to one of ordinary skill in the art that the inventor is in possession of the invention itself. MPEP 2163.02. Additionally, when evaluating compliance with 35 U.S.C. §112, the original written description being reviewed includes not only the specification, but also the claims and drawings as filed. MPEP 2163.06. Further, the mere fact that the words used in the claims are not used in the specification *in haec verba* by using the same words does not necessarily mean that the specification does not describe the subject matter of the invention. MPEP 2163.02. As such, the requirements of 35 U.S.C. §112, first paragraph, are not that all details of an invention must be put forth in the written description using the same descriptive terminology, but instead whether the written description, including the claims as originally presented, provides sufficient details of the invention such that the disclosure reasonably conveys to one of ordinary skill in the art that the inventor had possession at the time of the later claimed subject matter.

With regard to the original specification, it is noted that Example 1 in the application as filed used an  $\text{Al}(\text{OH})_3$  powder as an additive. Additionally, Example 4 in the application as filed used a  $\text{HB}(\text{OH})_2$  particulate powder as an additive. In neither Example was lithium included in the additive. As such, the Examples in the specification include additives which do not include lithium such that the original specification clearly embraces additives which do not include lithium.

Further, at least paragraphs 0017 and 0020 teach thermally absorbent elements used in additives according to aspects of the invention which do not include lithium.

While the Examiner asserts that the specification does not contain support which constructively sustains an additive compound which does not include lithium, it is respectfully submitted that the above noted portions and Examples were not addressed in the Office Action so as to evidence that the Examiner considered these portions and Examples in making the rejection. As such, it is respectfully submitted that, due at least to these Examples as well as the disclosure of the specification as a whole, claim 36 is compliant with 35 U.S.C. §§112, first paragraph, and 132, and it is respectfully requested that the Examiner reconsider and withdraw the rejection.

For at least similar reasons, it is respectfully submitted that claim 37 is compliant with 35 U.S.C. §§112, first paragraph, and 132, and it is respectfully requested that the Examiner reconsider and withdraw the rejection.

Lastly, the Examiner asserts that the specification does not constructively sustain that "the positive active material is not coated with a coating including the at least one additive compound" as recited in claim 39. While applicants do not agree with the Examiner that such a claim is not supported, In view of the above amendment to claim 39 to recite the features of claim 38, it is respectfully requested that the Examiner reconsider and withdraw the rejection of claim 39.

**REJECTION UNDER 35 U.S.C. §102:**

In the Office Action at pages 4-7, the Examiner rejects claims 1-6, 10-14, 24, 33 and 38 under 35 U.S.C. §102(b) in view of Amatucci et al. (U.S. Patent No. 5,705,291). This rejection is respectfully traversed and reconsideration is requested.

By way of review, claim 1 recites, among other features, "at least one additive compound selected from the group consisting of a thermal-absorbent element-included hydroxide, a thermal-absorbent element-included oxyhydroxide, a thermal-absorbent element-included oxycarbonate, and a thermal-absorbent element-included hydroxycarbonate."

On page 9 of the Office Action, the Examiner acknowledges that Amatucci et al. only discloses a hydroxide. However, consistent with the reasons set forth in the Amendment of April 21, 2004, Amatucci et al. suggests using a lithium hydroxide, but does not suggest that lithium is thermally absorbent such that the hydroxide disclosed in Amatucci et al. is not a hydroxide of a thermally absorbent element.

On page 10 of the Office Action, the Examiner asserts that products of identical chemical compositions cannot have mutually exclusive properties such that the property of being thermally absorbent is necessarily in the prior art in regard to any hydroxide, including lithium hydroxide. However, even assuming arguendo that the Examiner is correct, it is noted that claim 1 does not recite a hydroxide which is thermally absorbent, but instead recites "a thermal-absorbent element-included hydroxide" such that the element included in the hydroxide is recited as being thermally absorbent. It is respectfully submitted that lithium would not be understood by one of ordinary skill in the art to be a thermally absorbent element, especially in the context of a positive active material. C.f., HAWLEY'S CONDENSED CHEMICAL DICTIONARY, p705 (12<sup>th</sup> Ed. 1993) ("lithium" "reacts exothermally with nitrogen in moist air at high temperatures," "ignites in air near its melting point [of 179°C]," and "dangerous fire and explosion risk when exposed to water, acids, or oxidizing agents.")

Therefore, it is respectfully submitted that the lithium hydroxide of Amatucci et al. does

not disclose "a thermal-absorbent element-included hydroxide" as recited in claim 1.

Additionally, while Amatucci et al. vaguely sets forth that borate, lithiated borate, aluminate, lithiated aluminate, silicate, or lithiated silicate may be used in col. 2, lines 5-17 and col. 4, lines 13-28, Amatucci et al. actually teaches that the thin film is of boron oxide, boric acid, lithium hydroxide, aluminum oxide, lithium aluminate, lithium metaborate, silicon dioxide, and/or lithium silicate. Moreover, since borate, aluminate, lithiated aluminate, silicate, and/or lithiated silicate are each large classes of compounds, one of ordinary skill in the art would not immediately determine from these vague references that Amatucci et al. discloses the recited invention. MPEP 2131.02.

On page 6 and 10 of the Office Action, the Examiner asserts that Example 3 of Amatucci et al. discloses the creation of a lithiated powder from a combination of  $B_2H_3$  and  $LiOH \cdot H_2O$ , and that a secondary product can also result in the creation of a hydroxide of boron. As a result, the Examiner asserts that the burden has shifted to the applicant to show that such a combination does not result in a hydroxide of boron in at least a secondary product. In this manner, the Examiner appears to be asserting that Example 3 inherently results in a hydroxide of boron in addition to the lithiated powder since Amatucci et al. does not explicitly describe such a secondary property or the specific reaction by which the powder is produced.

Generally, where the Examiner relies upon the theory of inherency, the Examiner is required to provide extrinsic evidence that the features are necessarily present in the reference.

As noted in MPEP 2112, "[t]he fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic."

(emphasis in original). Thus, in order for the burden to shift to the applicants, the Examiner needs to provide sufficient evidence of record as to the necessary result of Example 3 so as to afford the applicants an opportunity to examine and rebut any such evidence. Without such evidence, the Examiner is relying on conjecture and has not established a prima facie case for anticipation based upon a theory of inherency.

Since the Examiner has not provided evidence that the lithiated powder resulting from Example 3 necessarily results in the a hydroxide of borate, and since the Examiner's assertion is only that such a result "can" occur if a proper set of reactions is set forth and depending on various unnamed factors set forth on page 10 which need not be present in the production of the lithiated powder, it is respectfully submitted that the Examiner has not provided sufficient evidence of record to show that the lithiated powder of Example 3 necessarily results in a hydroxide of borate as is required to rely on Amatucci et al. inherently disclosing such features as set forth in the Office Action.

Further, to the extent the Examiner is relying on personal knowledge in maintaining the rejection, the personal knowledge of the Examiner, when used as a basis for a rejection, must be supported by an affidavit as to the specifics of the facts of that knowledge when called for by the applicant. See, MPEP 2144.03, 37 C.F.R. § 1.104(d)(2). In short, the rules of the U.S. Patent and Trademark Office require that the Examiner must either support this assertion with an Affidavit, or withdraw the rejection. Therefore, it is further respectfully requested that the Examiner support the rejection with either an affidavit or a reference, or withdraw the rejection.

As such, it is respectfully submitted that Amatucci et al. does not disclose a hydroxide of boron as recited in claims 3 and 10.

On pages 6-7 of the Office Action, the Examiner again asserts that claims 5 and 13 recite merely method limitations that do not patentably distinguish over Amatucci et al. since the claims are to the product itself and not to the manner in which the product is made. The Examiner asserts that the annealing process results in a removal of liquid which is equivalent to the removal of liquid recited in claims 5 and 13. On pages 10-11, the Examiner asserts that the fact that the applicants have recognized another advantage or disadvantage of removing the liquid through annealing which would flow naturally from the suggestion of the prior art cannot be the basis when the differences are otherwise obvious.

However, it is respectfully submitted that the process of annealing results in a different

physical result than mere drying at a lower temperature than that set forth in Amatucci et al. As such, even assuming arguendo that the liquid is removed in both the annealing and drying operations, the resulting structure of the annealed film in Amatucci et al. has a different physical structure than the dried additive since the dried additive is dried at a temperature less than that required for annealing. As noted in at least paragraph 0022 of the instant application, using temperatures in excess of 200°C makes it impossible to convert to the desired "thermal-absorbent element-included hydroxide, the thermal-absorbent element-included oxyhydroxide, the thermal-absorbent element-included oxycarbonate, or the thermal-absorbent element-included hydroxycarbonate." As such, it is respectfully submitted that there is evidence of record that the result of the drying as recited in claims 3 and 10 results in a different structure such that the annealing process of Amatucci et al. does not disclose or suggest the composition as recited in claims 5 and 10.

Lastly, on page 7 of the Office Action, the Examiner asserts that Amatucci et al. discloses a positive electrode composition that is associated with a current collector so as to disclose the features of claim 38. By way of review, claim 38 recites, among other features, "the positive active material composition is formed by combining a powder containing the positive active material with a powder containing the at least one additive compound in a solvent to form a positive active material slurry to be coated on a current collector of an electrode of the lithium battery."

In contrast, Amatucci et al. discloses annealing the lithiated powder so as to form a surface coating on a positive active material, such as  $\text{LiMn}_2\text{O}_4$ . The coated positive active material is then included in a binder matrix with carbon black. (Col. 3, lines 1-13). However, even assuming arguendo that the annealing of the lithiated powder results in a hydroxide of boron, the hydroxide would be coated on the  $\text{LiMn}_2\text{O}_4$  such that the hydroxide would only exist on the coating. In contrast, claim 38 recites combining the formed positive active material and the formed additive, which results in a different composition in which the additive is fully realized

in the positive active material composition and is not merely present as a thin coating on the positive active material as disclosed in Amatucci et al. As such, it is respectfully submitted that Amatucci et al. does not disclose the invention as recited in claim 38.

Claims 2, 4, 6, 11, 12, 14, 24, and 33 are deemed patentable due at least to their depending from corresponding claims 1 and 10.

**REJECTION UNDER 35 U.S.C. §103:**

In the Office Action at page 8, the Examiner rejects claims 36, 37, and 39 under 35 U.S.C. §103 in view of Amatucci et al. and Kweon et al. (U.S. Patent Publication No. 2004-0018429). The rejection is respectfully traversed and reconsideration is requested.

As a point of clarification, claim 39 has been amended to incorporate the features of claim 38 as set forth above. It is respectfully submitted that claim 39 is deemed patentable for at least reasons similar to why claim 38 is deemed patentable.

Further, Kweon et al. appears to qualify as prior art under 35 U.S.C. §102(e). In addition, it is noted that Kweon et al. was owned by the same person or subject to an obligation of assignment to the same entity with the instant application at the time the invention of the instant application was made. Under 35 U.S.C. §103(c), "[s]ubject matter developed by another person, which qualifies as prior art only under one or more subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person." MPEP 2146, EXAMINATION GUIDELINES FOR 35 U.S.C. 102(E), AS AMENDED BY THE AMERICAN INVENTORS PROTECTION ACT OF 1999, AND FURTHER AMENDED BY THE INTELLECTUAL PROPERTY AND HIGH TECHNOLOGY TECHNICAL AMENDMENTS ACT OF 2002, AND 35 U.S.C. 102(G), 1266 OG 77 (January 14, 2003). As such, it is respectfully submitted that Kweon et al. is not available as prior art for use in an obviousness rejection under 35 U.S.C. §103. Since Amatucci et al. is not relied upon as disclosing the features of claims 36, 37, and 39 without Kweon et al., it is respectfully requested

that the Examiner reconsider and withdraw the objection.

In the Office Action at pages 8-9, the Examiner rejects claims 36, 37, and 39 under 35 U.S.C. §103 in view of Amatucci et al. and Bauerlein (U.S. Patent Publication No. 2002-0039682). The rejection is respectfully traversed and reconsideration is requested.

As a point of clarification, claim 39 has been amended to incorporate the features of claim 38 as set forth above. It is respectfully submitted that claim 39 is deemed patentable for at least reasons similar to why claim 38 is deemed patentable.

Additionally the instant application is based on Korean patent application no. 2001-17298, which was filed April 2, 2001 in the Korean Intellectual Property Office. A certified copy of Korean patent application no. 2001-17298 was filed in the United States Patent and Trademark Office as acknowledged by the Examiner on page 1 of the Office Action. Further, enclosed is an English translation of Korean patent application no. 2001-17298, along with a statement from the translator in compliance with 37 CFR 1.55(a)(4). As such, it is respectfully submitted that the applicants have established a date of invention of at least April 2, 2001. MPEP 210.15. Since Bauerlein has a U.S. filing date of July 20, 2001, it is respectfully submitted that Bauerlein is not available as prior art under 35 U.S.C. §102(e) since Bauerlein was not filed in the United States prior to the applicants' invention. MPEP 706.02(b). Since Bauerlein does not appear to otherwise qualify as prior art, it is respectfully requested that the Examiner withdraw the rejection of claims 36, 37, and 39 in view of Bauerlein.

**CONCLUSION:**

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot. And further, that all pending claims patentably distinguish over the prior art. Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance which action is earnestly solicited. At a minimum, this Amendment should be entered

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at least for purposes of Appeal as it either clarifies and/or narrows the issues for consideration by the Board.

If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited and possibly concluded by the Examiner contacting the undersigned attorney for a telephone interview to discuss any such remaining issues.

If there are any additional fees associated with the filing of this Response, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

By: 

James G. McEwen  
Registration No. 41,983

1201 New York Avenue, NW, Suite 700  
Washington, D.C. 20005  
Telephone: (202) 434-1500  
Facsimile: (202) 434-1501  
Date: SEP. 17, 2004